

Please amend the application filed on even date herewith prior to proceeding with its examination.

**IN THE CLAIMS**

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Please cancel claims 1-29, inclusive, without prejudice or disclaimer.

30. (New) Isolated antibodies and antisense oligonucleotides that recognize or modulate BAG3 protein and fragments thereof characterized in that they are used in  
10 research, diagnostics and therapy for cell death-involving diseases, and for modulation of cell survival and/or death, said protein and fragments being selected in the group of peptide sequences identified as SEQ ID NO: 2, 4, 6, 8, 15, 16, 17, 18.

31. (New) Antibodies and antisense oligonucleotides according to claim 30 wherein said protein and fragments have a homology of at least 75%, preferably at least  
15 80% homology, preferably at least 90% homology, more preferably at least 95% homology, even more preferably at least 98% homology to at least one of the BAG3 protein and fragments selected in the group of sequences identified as SEQ ID NO: 2, 4, 6, 8, 15, 16, 17, 18.

32. (New) Antibodies and antisense oligonucleotides according to claim 30 for  
20 modulating apoptosis in primary cells.

33. (New) Antibodies and antisense oligonucleotides according to claim 30 for use in the treatment of a disease selected in the group of: acute or chronic tissue damages, such as heart, kidney, brain or other organ ischaemia, HIV- related damage of brain or other tissues, skeletal muscle disorders, transplantation rejection; chronic degenerative  
25 disorders such as Parkinson's disease, amyotrophic lateral sclerosis and others; and neoplastic, autoimmune and other diseases involving excessive or defective apoptosis;

tissue repair or wound healing, treatment of surgical incisions, and ulcers, such as stomach or diabetic ulcers.

34. (New) Isolated polynucleotides encoding the protein and fragments according to claim 30.

5 35. (New) Antibody according to claim 30 selected in the group of polyclonal antibodies AC-BAG3-1 and AC-BAG3-2 and monoclonal antibodies from mother clones AC-1, AC-2, AC-3, AC-4, AC-5, AC-6, AC-7, AC-8, AC-9 against at least one of the peptide sequences indicated as SEQ ID NO: 2, 4, 6, 8, 15, 16, 17, 18.

36. (New) Antibody AC-1- derived according to claim 35 secreted by the  
10 hybridoma mother clone n° PD02009 deposited on the 17/12/2002 at the Centro Biotecnologie Avanzate di Genova.

37. (New) Hybridoma mother clone n° PD02009 deposited on the 17/12/2002 at the Centro Biotecnologie Avanzate di Genova for the production of the antibody according to claim 36.

15 38. (New) Map construct to obtain the antibodies according to claim 35, wherein said construct being selected in the group of:

- MAP-BAG3-1: nh2-DRDPLPPGWEIKIDPQ-MAP containing (SEQ ID NO 15)

- MAP-BAG3-2: nh2- SSPKSVATEERAAPS-MAP containing (SEQ ID NO 16)

- MAP-BAG3-3: nh2- DKGKKNAGNAEDPHT-MAP containing (SEQ ID NO 17)

20 - MAP-BAG3-4: nh2- NPSSMTDTPGNPAAP-MAP containing (SEQ ID NO 18)

39. (New) Antisense oligonucleotides according to claim 30 having a sequence selected in the group of SEQ ID NO: 9, 10, 11.

40. (New) A vector comprising the isolated oligonucleotide/s of claim 39.

41. (New) An expression vector comprising the isolated oligonucleotide/s of claim 39.

42. (New) A host cell genetically engineered to contain the oligonucleotide/s of claim 30.

5 43. (New) A host cell genetically engineered to contain the oligonucleotide/s of claim 39 in operative association with a regulatory sequence that controls expression of the oligonucleotide in the host cell.

44. (New) Polynucleotides and corresponding codified peptides indicated as SEQ ID NO: 2, 3, 4, 5, 6, 7, 8, 15, 16, 17, 18 and constructs comprising them to modulate  
10 cell survival and/or death in primary cells.

45. (New) Medical composition modulating the BAG3 expression comprising as active principle at least one polynucleotides and polypeptides according to claim 44.

46. (New) Medical composition for modulating the BAG3 expression  
15 comprising as active principle at least one antibody or antisense oligonucleotide according to claim 30.

47. (New) Composition according to claim 46 comprising the monoclonal antibody AC-1.

48. (New) Composition according to claim 46 comprising an antibody against a  
20 peptide sequence selected in the group of SEQ ID NO: 2, 4, 6, 8, 15, 16, 17, 18.

49. (New) Composition according to claims 46 further comprising a pharmaceutically acceptable carrier.

50. (New) Composition according to claim 46 for cell death-involving diseases, and for modulation of cell survival and/or death.

51. (New) Composition according to claim 46 for modulating apoptosis in primary cells.

52. (New) Composition according to claim 46 for treating a disease selected in the group of: acute or chronic tissue damages, such as heart, kidney, brain or other organ ischaemia, HIV- related damage of brain or other tissues, skeletal muscle disorders, transplantation rejection; chronic degenerative disorders such as Parkinson's disease, amyotrophic lateral sclerosis and others; and neoplastic, autoimmune and other diseases involving excessive or defective apoptosis; tissue repair or wound healing, treatment of surgical incisions, and ulcers, such as stomach or diabetic ulcers.

53. (New) A diagnostic agent to determine the expression of BAG3 protein characterized in that it contains a monoclonal or polyclonal antibody directed against the a polypeptide sequence selected in the group of SEQ ID NO: 4, 6, 8, 15, 16, 17, 18, preferably as defined by AC-1.

54. (New) Method for treating cell death-involving diseases and for modulating cell survival and/or death comprising the step of administering to a subject in need an effective amount of antibodies and antisense oligonucleotides according to claim 30.

55. (New) Method for treating cell death-involving diseases and for modulating cell survival and/or death comprising the step of administering to a subject in need of an effective amount of polynucleotides and polypeptides according to claim 44.

56.. (New) Method for modulating apoptosis in primary cells comprising the step of administering to said cells an effective amount of antibodies and antisense oligonucleotides according to claim 30.

57. (New) Method for modulating apoptosis in primary cells comprising the step of administering to said cells an effective amount of polynucleotides and polypeptides according to claim 45.

58. (New) Method for treating a disease selected in the group of: acute or  
5 chronic tissue damages, such as heart, kidney, brain or other organ ischaemia, HIV- related damage of brain or other tissues, skeletal muscle disorders, transplantation rejection; chronic degenerative disorders such as Parkinson's disease, amyotrophic lateral sclerosis and others; and neoplastic, autoimmune and other diseases involving excessive or defective apoptosis; tissue repair or wound healing, treatment of surgical incisions, and ulcers, such  
10 as stomach or diabetic ulcers; said method comprising the step of administering to a subject in need an effective amount of antibodies and antisense oligonucleotides according to claim 30.

59. Method for treating a disease selected in the group of acute or chronic tissue damages, such as heart, kidney, brain or other organ ischaemia, HIV-related damage of  
15 brain or other tissues, skeletal muscle disorders, transplantation rejection; chronic degenerative disorders such as Parkinson's disease, amyotrophic lateral sclerosis and others, and neoplastic, autoimmune and other diseases involving excessive or defective apoptosis, tissue repair or wound healing, treatment of surgical incisions, and ulcers such as stomach or diabetic ulcers; said method comprising the step of administering to a  
20 subject in need an effective amount of polynucleotides and polypeptides according to claim 44.

60. (New) Method for detecting the presence of the nucleotide sequence SEQ ID NO: 1 or of the protein SEQ ID NO: 2 or parts of them in a sample, in particular at least a part identified as SEQ ID NO: 3, 4, 5, 6, 7, 8, 15, 16, 17, 18; said method

comprising the steps of: contacting the sample with a compound that binds to and forms a complex with the nucleotide or the protein or parts thereof in sufficient conditions to form the complex, and detecting said complex.

61. (New) Method for detecting a compound that binds to the protein SEQ ID  
5 NO: 2 or parts of it in a sample, in particular at least a part identified as SEQ ID NO: 4, 6,  
8, 15, 16, 17, 18; said method comprising the steps of: contacting the compound with the  
protein or its part/s in sufficient conditions to form the complex compound/protein or its  
part/s, and detecting said complex.

62. (New) Kit for identification and diagnosis comprising the polyclonal or  
10 monoclonal antibodies according to claim 30 or nucleotide sequence SEQ ID NO: 1 or the  
protein SEQ ID NO: 2 or parts of them, in particular at least a part identified as SEQ ID  
NO: 3, 4, 5, 6, 7, 8, 15, 16, 17, 18; or the antisense and nonsense oligos identified as SEQ  
ID NO: 9, 10, 11, 12, 13, 14, or functionally equivalents of the above identified sequences.